WAPA-SN Rates Informal Public Process

Western Area Power Administration

Sierra Nevada Region

Monday, June 8, 2020

9:00 AM – 12:00 PM

Web Conference

Western Area Power Administration

WebEx Housekeeping Items

- All participants are muted on entry to ensure a smooth remote meeting
- For questions during Q&A periods, please choose one of the following options:
  - Send questions to the host in the WebEx chat
  - Use the “Raise Hand” icon next to your name in participant list. The host will unmute and call on you

  - Phone only participants: When prompted by the host, press *6 from device to unmute yourself on WebEx
- Some questions may be answered later in other presentations
- We will have time for additional questions at the end of the meeting
- Make sure you are not “double-muted” when attempting to talk (i.e. muted on your device in addition to the WebEx client)

Agenda

1.	WebEx Host	Tony Henriquez
2.	Welcome and Introductions	Arun Sethi, SN VP and Power Marketing Manager
3.	Opening Remarks	Mark Gabriel, WAPA Administrator and CEO
4.	Proposed Rates Process Timeline	Autumn Wolfe, SN Rates Manager
5.	SMUD – Benefits of Participating in EIM	Jon Olson, SMUD
6.	WAPA-SN's EIM Potential Benefits: EIM Resource Valuation	Robert Delizo, SN Resource and Scheduling Manager
7.	OATT Revisions, Rate Schedules and Business Practices	Autumn Wolfe, SN Rates Manager

Agenda Cont.

8.	Allocation of EIM Charges	Autumn Wolfe, SN Rates Manager
9.	Overview of Proposed EIM Rate Schedules	Autumn Wolfe, SN Rates Manager
10.	Overview of Revisions to Existing Rate Schedules	Autumn Wolfe, SN Rates Manager
11.	Proposed Trinity Public Utility District EIM Settlement	Tong Wu, SN Settlements Manager
12.	Follow-up Items	Autumn Wolfe, SN Rates Manager
13.	Q&A	All
14.	Closing Remarks	Autumn Wolfe, SN Rates Manager

Welcome and Introductions

Arun Sethi

SN VP and Power Marketing Manager

Opening Remarks

Mark Gabriel

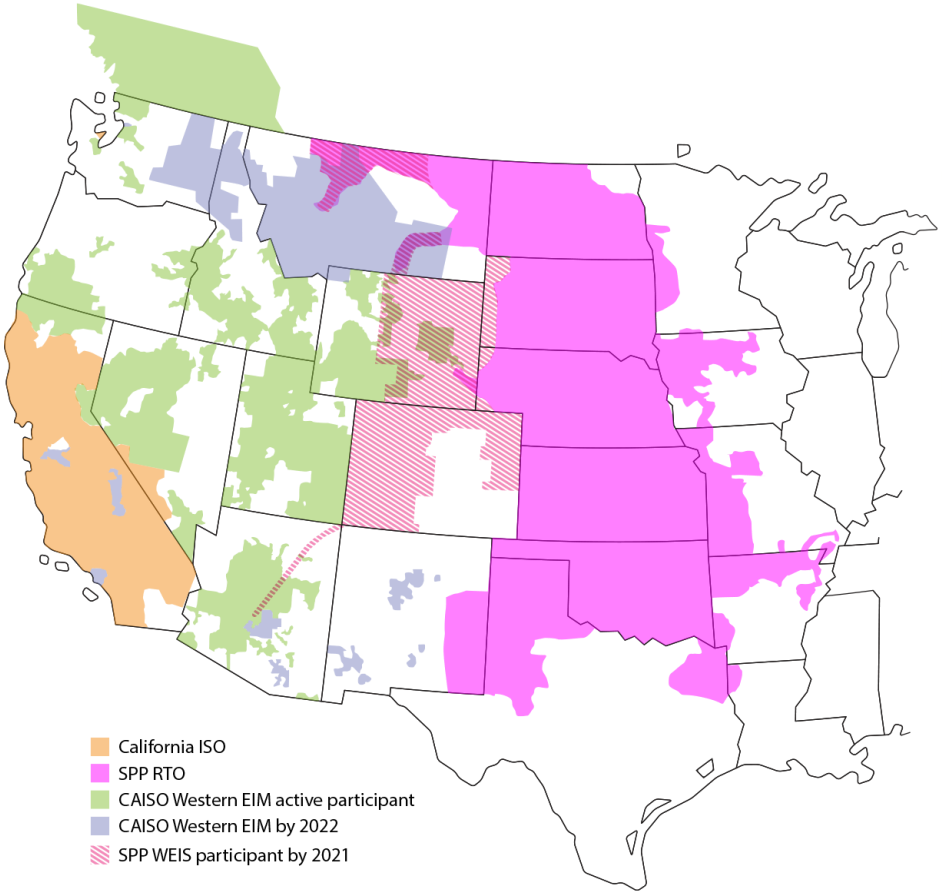
WAPA Administrator and CEO

Rates Accomplishments

- Derived rate anticipated to be less than market price
- $10 million reduction in repayment requirement
- Improved communication & collaboration with Reclamation

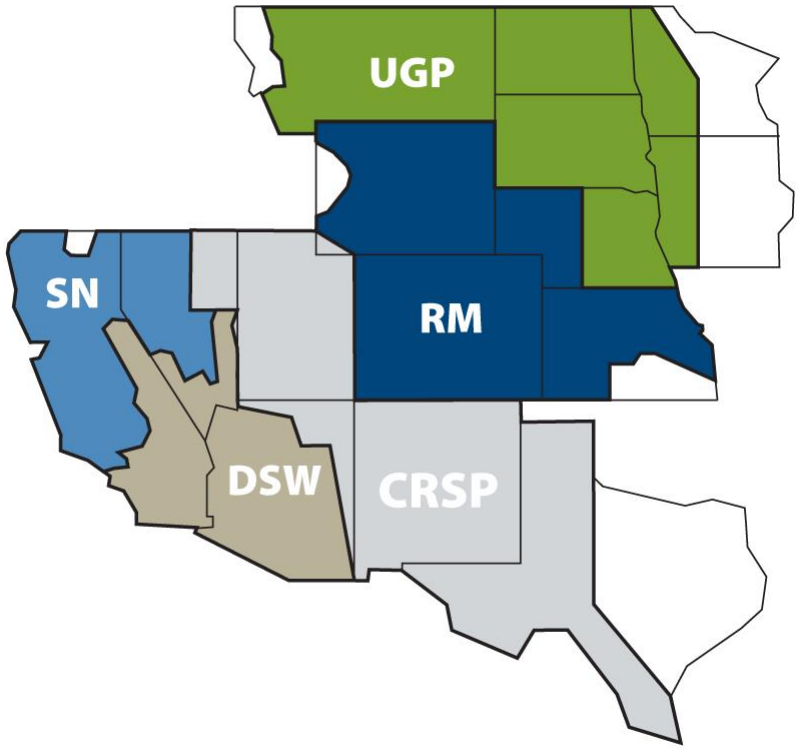
Reminder: Why Joining EIM

- Change in generation mix
- Shortage of electric capacity
- Reduced bilateral trading partners
- Price volatility
- Increasingly dynamic system



Position on Markets

- No “one-size-fits-all” solution
- Stay strategic, proactive and aligned with our mission
- Create best possible outcome for our customers and WAPA

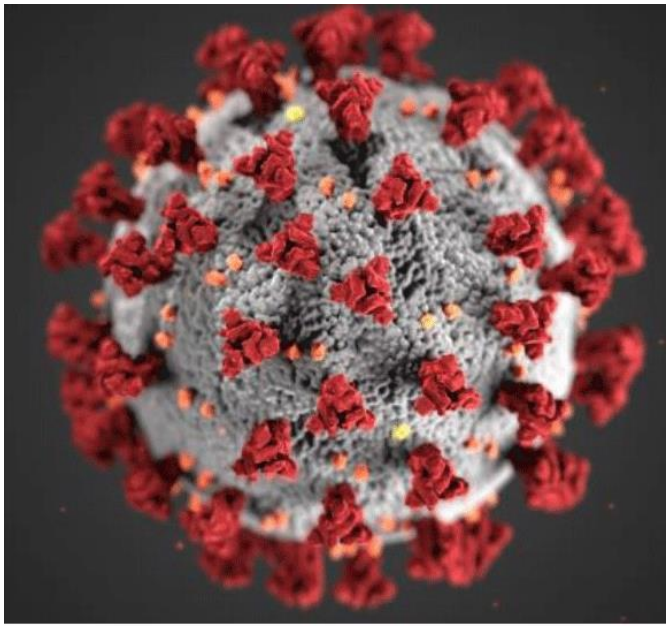


Wildfire Preparation & Mitigation

- Follow Wildfire Mitigation Plan
- Collaborating with others
- Active role on ESCC wildfire committee
- TNI-WEA project

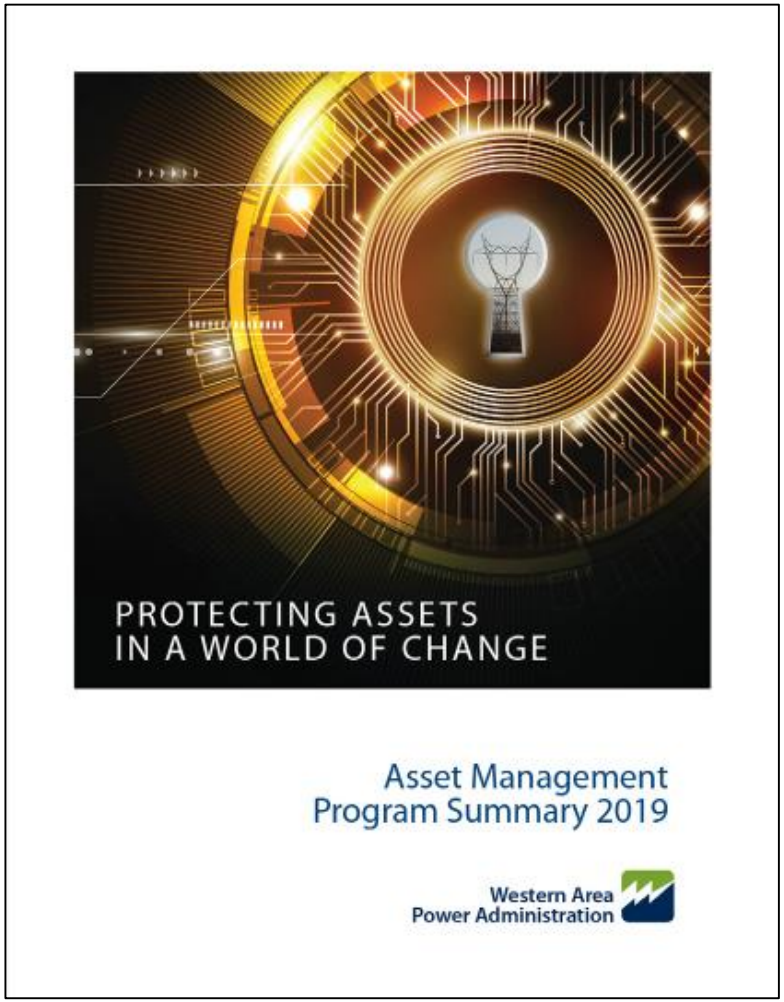
COVID-19 Response

- Objective: Ensure continued mission success and protect employees
- Maximized telework
- Social distancing plans in place for Ops & Maintenance
- Collaborating with federal, state & local entities
- No visitors to WAPA facilities
- Starting Responsible Workplace Re-entry
  - Mission-critical travel & training only



Asset Management (AM) Almanac

- Protecting Assets in World of Change
- Support informed and strategic decision making
- Provides info on WAPA's assets, performance data and trends



Key Takeaways

We are committed to delivering on our mission.
Industry is changing at a rapid pace, and we must keep up.
Focus on optimizing existing technologies & assets.

Contact/Follow me

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WAPA-SN's Proposed Rates Process Timeline

Autumn Wolfe
SN Rates Manager

Proposed Timeline

May 11, 2020	1st Informal Customer Meeting
Jun 8, 2020	2nd Informal Customer Meeting
Jun 25, 2020	3rd Informal Customer Meeting
Jul 10, 2020	4th Informal Customer Meeting (optional)
Jun-Jul 2020	Federal Register Notice Published (90-Day Comment Period Begins)
Aug 17, 2020	Formal Customer Public Information & Comment Forum
Sep-Oct 2020	90-Day Comment Period Ends
Feb 2021	Final Federal Register Notice Published
Apr 1, 2021	New Rate Schedules Effective Date

SMUD - Benefits of Participating in EIM

Jon Olson and Debra Warady
Sacramento Municipal Utility District

WAPA-SN's EIM Potential Benefits: EIM Resource Valuation

Cary Fox, Central Valley Operations, Bureau of Reclamation

Robert Delizo, SN Resources and Scheduling Manager

EIM Resource Assumptions

- Use historical Spinning Reserve hourly capacity available as proxy resource for EIM
- Apply 50MW cap
- Use +/-50MW flexibility from base schedules
- Apply 300MWh cap for cumulative dec bids and 300MWh for cumulative inc bids in one operating day
- Apply +/-600MWh cap for cumulative daily MWh in one operating week (starting on Mondays)

EIM Resource Bidding Strategies

- Use bid pricing strategy to balance dec dispatch (Sub-Balancing Authority Area/SBA to import energy) with inc dispatch (SBA to sell energy) in one operating day
  - Dec when LMP < bid price
  - Inc when LMP > bid price
- Awards in the Fifteen Minute Market (FMM) and Real Time Dispatch (RTD) 5-minute dispatches incremental (or decremental) to FMM awards

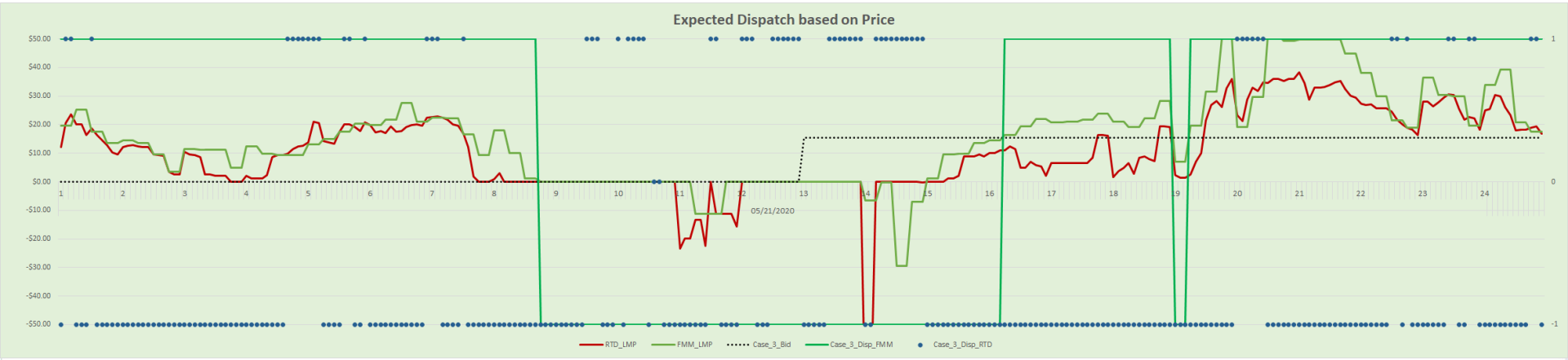
Scenarios to achieve low-cost purchases and high-value sales while ensuring adequate water management in the operating day

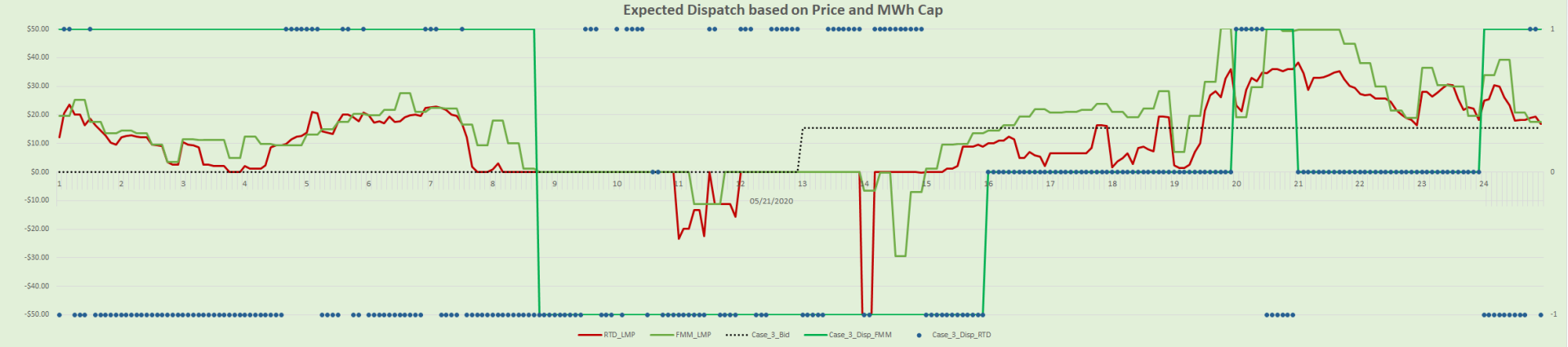
Case 1: HE 1-24 at CVP breakeven cost
Case 2: HE 1-24 at $0/MW
Case 3: HE 1-12 at $0/MW, HE 13-24 at 0.5 CVP breakeven cost
Case 4: HE 1-12 at $0/MW, HE 13-24 at CVP breakeven cost

CVP breakeven cost = Weighted Average Effective Rate (2006-2019)
= $30.92/MWh

ELAP LMP and Dispatch – Case 3

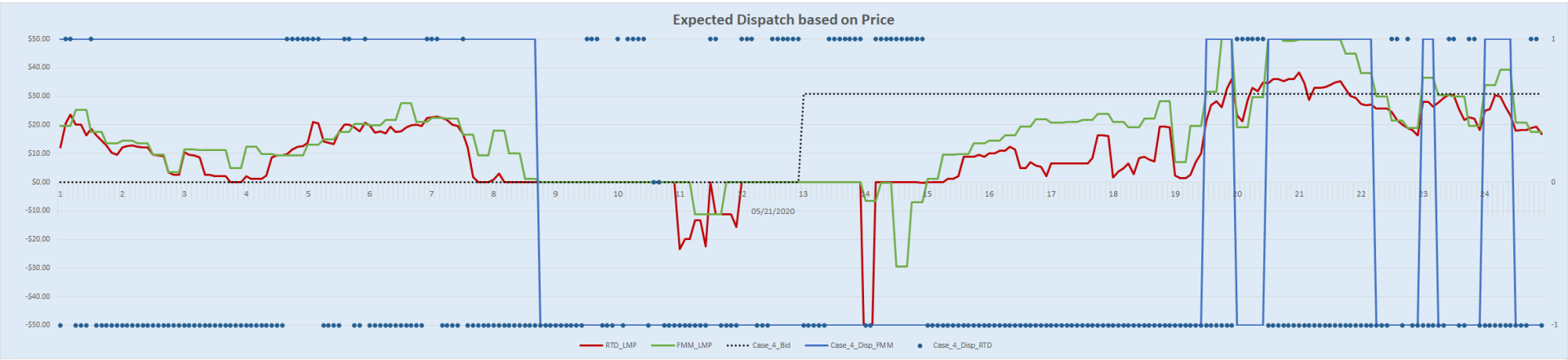
Inc (1) when LMP > bid price, Dec (-1) when LMP < bid price

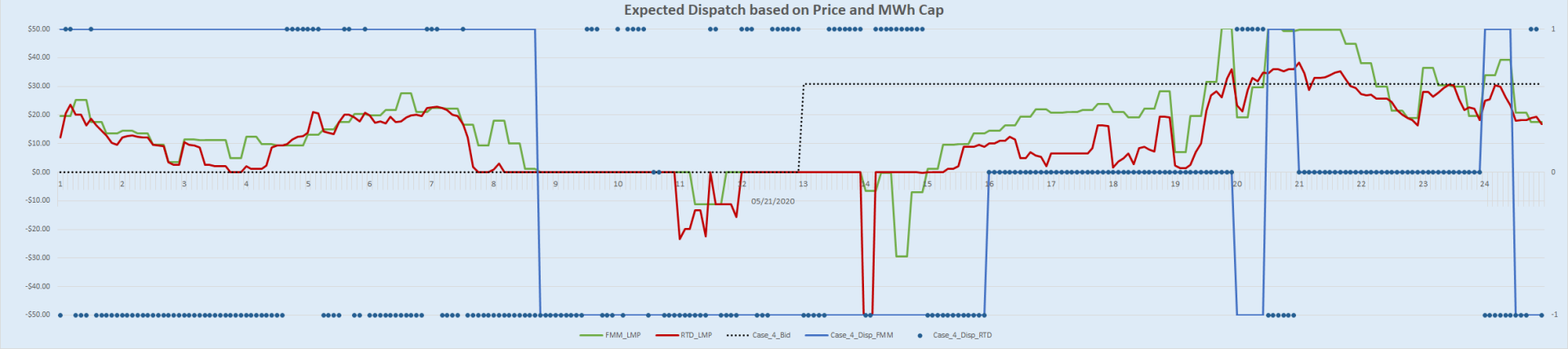




ELAP LMP and Dispatch – Case 4

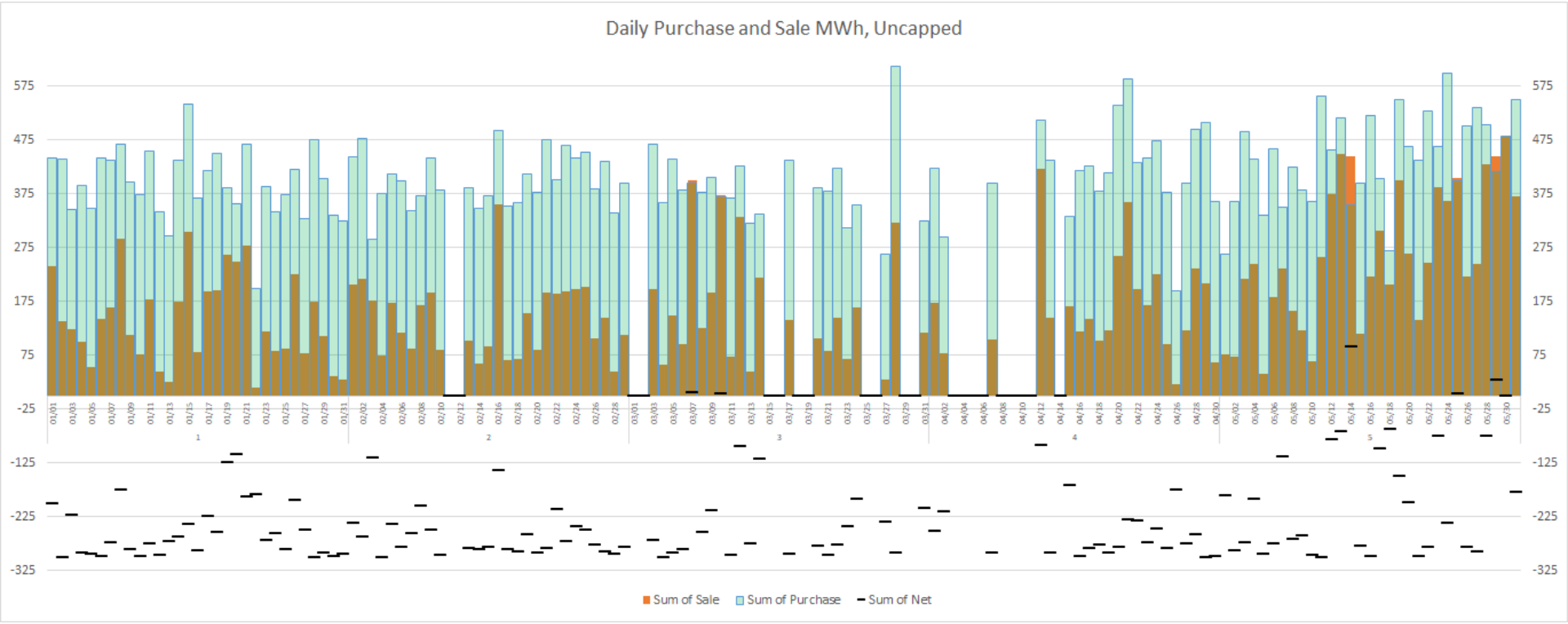
Inc (1) when LMP > bid price, Dec (-1) when LMP < bid price





Purchase and Sale MWh, Uncapped

- **January – May 2020**



Purchase and Sale MWh, Capped

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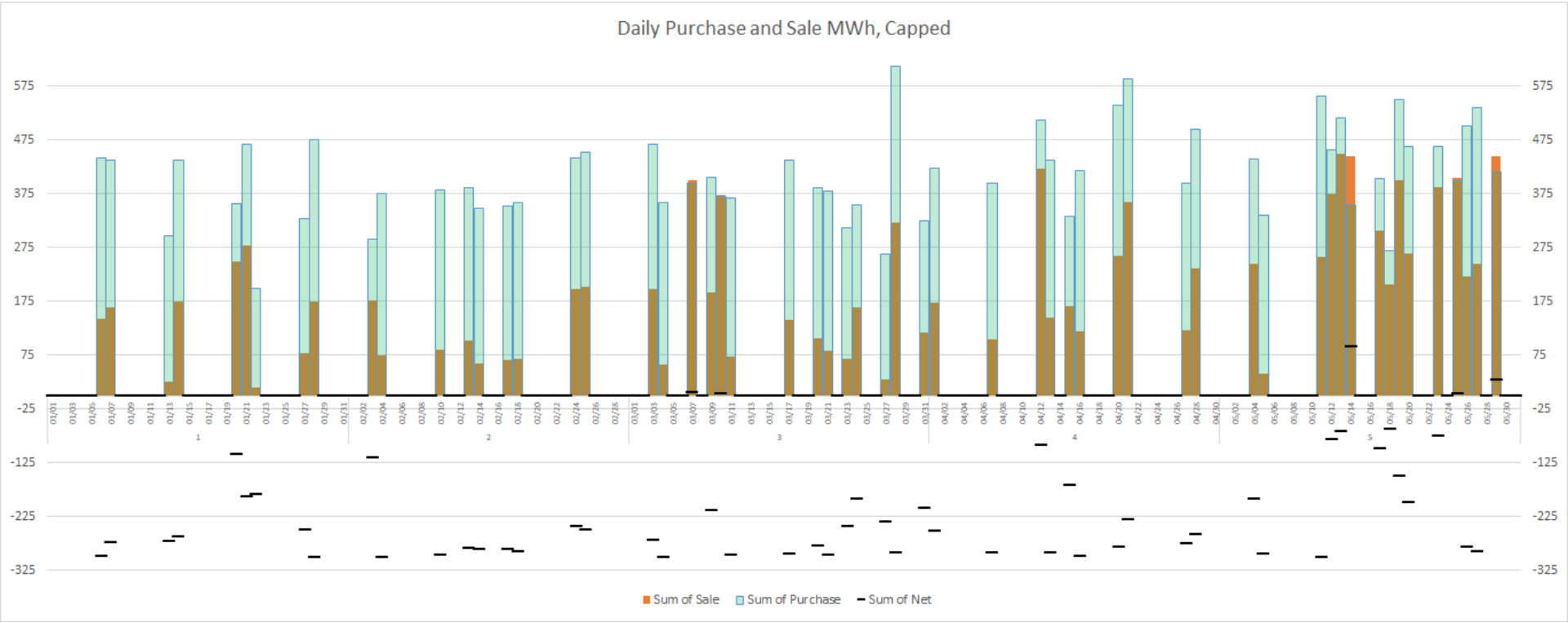


Valuation Results

- 300MWh cap for cumulative dec bids and 300MWh for cumulative inc bids in one operating day
- **+/-600MWh cap for cumulative daily MWh in one operating week (starting on Mondays)**

Cumulative Energy Imported or Exported, MWh

Period	Imported MWh	Exported MWh
Jan - Dec 2017	31,116	12,571
Jan - Dec 2018	58,205	30,271
Jan - Dec 2019	77,345	49,023
Jan - May 2020	23,471	11,467
Total	190,137	103,332

Counts of Days with Energy Imported or Exported, days

Level of MWh Imported	Days with Imports	Days with Exports	Days with Net Imports	Days with Net Exports
Up to 300 MWh	469	212	239	10
Up to 200 MWh	98	191	146	15
Up to 100 MWh	40	195	151	46

Valuation Results

- 300MWh cap for cumulative dec bids and 300MWh for cumulative inc bids in one operating day
- **+/-600MWh cap for cumulative daily MWh in one operating week (starting on Mondays)**

EIM Dispatch Benefits

	Purchase Benefits*, $				Sale Benefits, $			
Period	Case 1	Case 2	Case 3	Case 4	Case 1	Case 2	Case 3	Case 4
Jan - Dec 2017	547,492	456,712	465,413	488,975	1,079,665	995,502	995,652	1,080,531
Jan - Dec 2018	762,418	466,116	500,489	561,951	2,615,059	2,336,798	2,346,901	2,628,196
Jan - Dec 2019	883,852	554,244	624,815	671,127	3,688,920	3,319,424	3,312,071	3,697,653
Jan - May 2020	248,394	90,091	112,582	134,812	565,035	685,173	679,625	696,170
Total	2,442,156	1,567,163	1,703,299	1,856,865	7,948,679	7,336,897	7,334,250	8,102,550

** Purchase benefits represent cost savings*

Total EIM Dispatch Benefits = Purchase Benefits + Sale Benefits, $

Period	Case 1	Case 2	Case 3	Case 4
Jan - Dec 2017	1,627,157	1,452,215	1,461,065	1,569,506
Jan - Dec 2018	3,377,477	2,802,914	2,847,390	3,190,147
Jan - Dec 2019	4,572,772	3,873,668	3,936,886	4,368,780
Jan - May 2020	813,428	775,264	792,207	830,981
Total	10,390,835	8,904,060	9,037,549	9,959,415

Case 1: HE 1-24 at CVP breakeven cost
Case 2: HE 1-24 at $0/MW
Case 3: HE 1-12 at $0/MW, HE 13-24 at 0.5 CVP breakeven cost
Case 4: HE 1-12 at $0/MW, HE 13-24 at CVP breakeven cost

Comparison with Spinning Reserve Sales

- Assuming WAPA-SNR participated in EIM for the period January 2017 and onward

EIM Dispatch Benefits vs. Spinning Reserve Revenues

Period	Total EIM Dispatch Benefits = Purchase Benefits + Sale Benefits, $				Spinning Reserve Revenues, $
	Case 1	Case 2	Case 3	Case 4	
Jan - Dec 2017	1,627,157	1,452,215	1,461,065	1,569,506	600,501.75
Jan - Dec 2018	3,377,477	2,802,914	2,847,390	3,190,147	1,076,594.08
Jan - Dec 2019	4,572,772	3,873,668	3,936,886	4,368,780	1,255,670.46
Jan - May 2020	813,428	775,264	792,207	830,981	247,369.86
Total	10,390,835	8,904,060	9,037,549	9,959,415	3,180,136.14

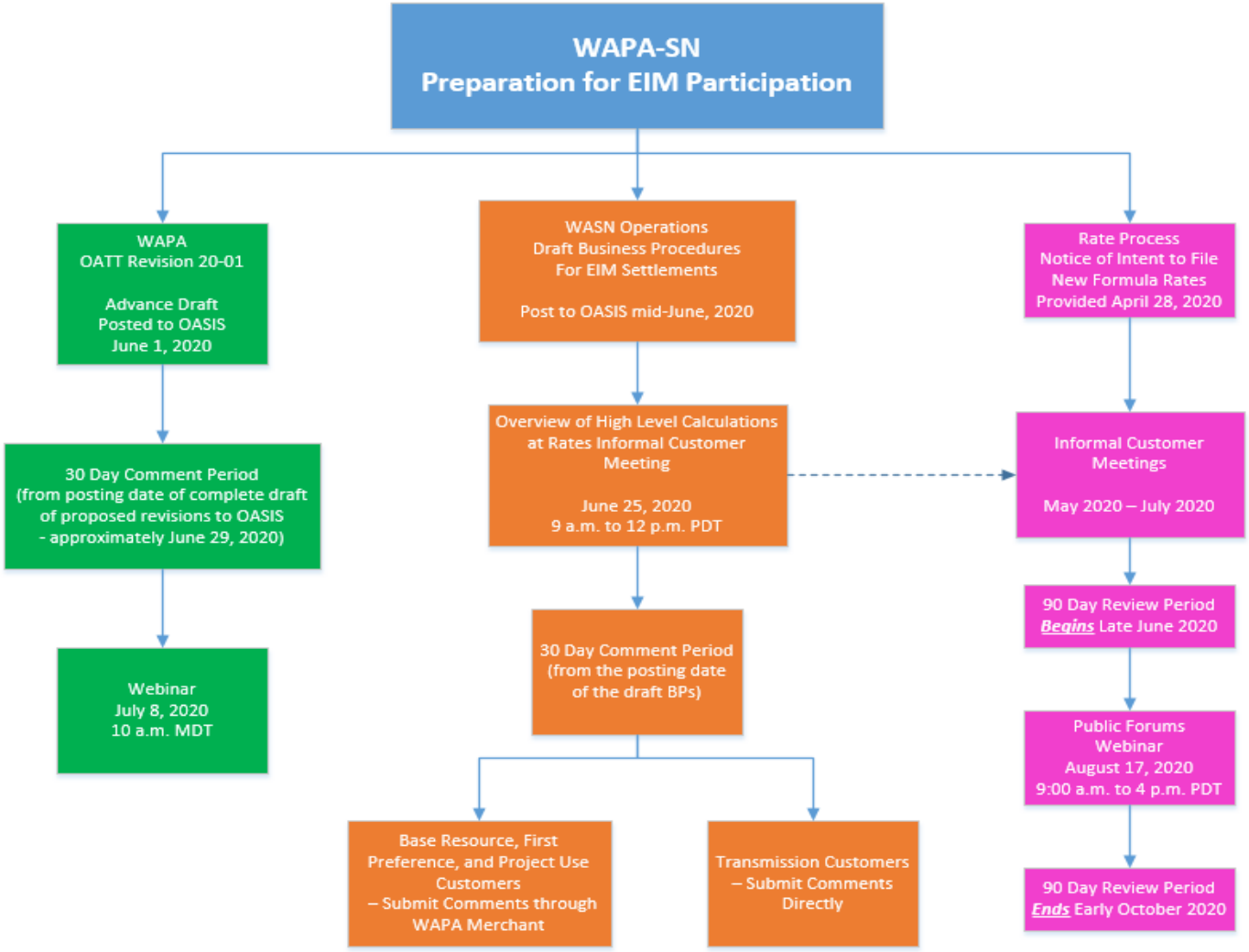
Net EIM Dispatch Benefits, $

Period	Case 1	Case 2	Case 3	Case 4
Jan - Dec 2017	1,026,656	851,713	860,563	969,004
Jan - Dec 2018	2,300,883	1,726,320	1,770,796	2,113,553
Jan - Dec 2019	3,317,102	2,617,998	2,681,216	3,113,110
Jan - May 2020	566,059	527,894	544,838	583,612
Total	7,210,699	5,723,924	5,857,413	6,779,279

OATT Revisions, Rate Schedules and Business Practices

Autumn Wolfe
SN Rates Manager

OATT Revisions, Rate Schedules and Business Practices



Allocation of EIM Charges

Autumn Wolfe
SN Rates Manager

Tier 1 vs. Tier 2 Allocation

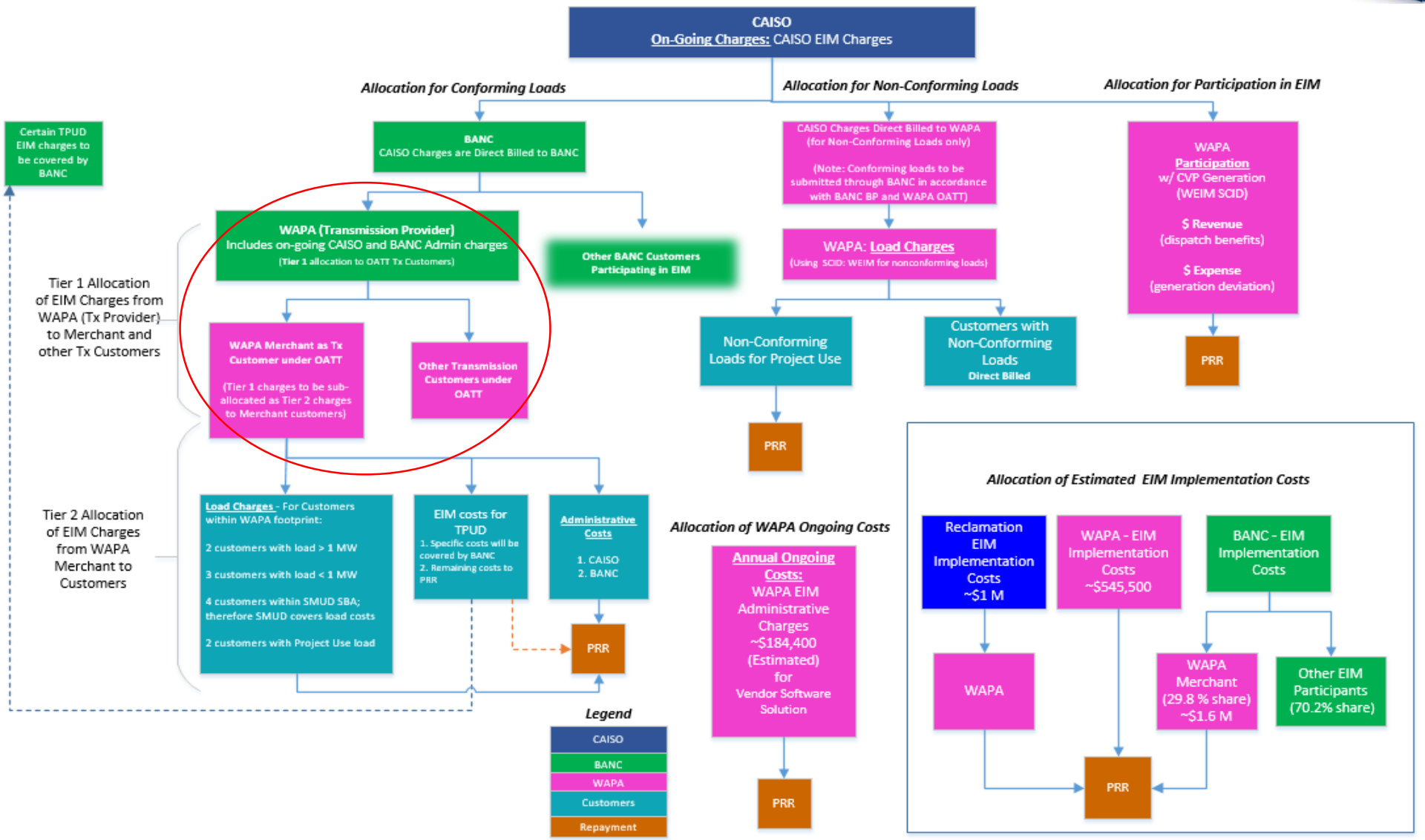
Tier 1 Cost Allocation

- Is the allocation of WAPA's share of CAISO and BANC charges to WAPA's Transmission Customers, including WAPA Merchant
- Will require new Rate Schedules

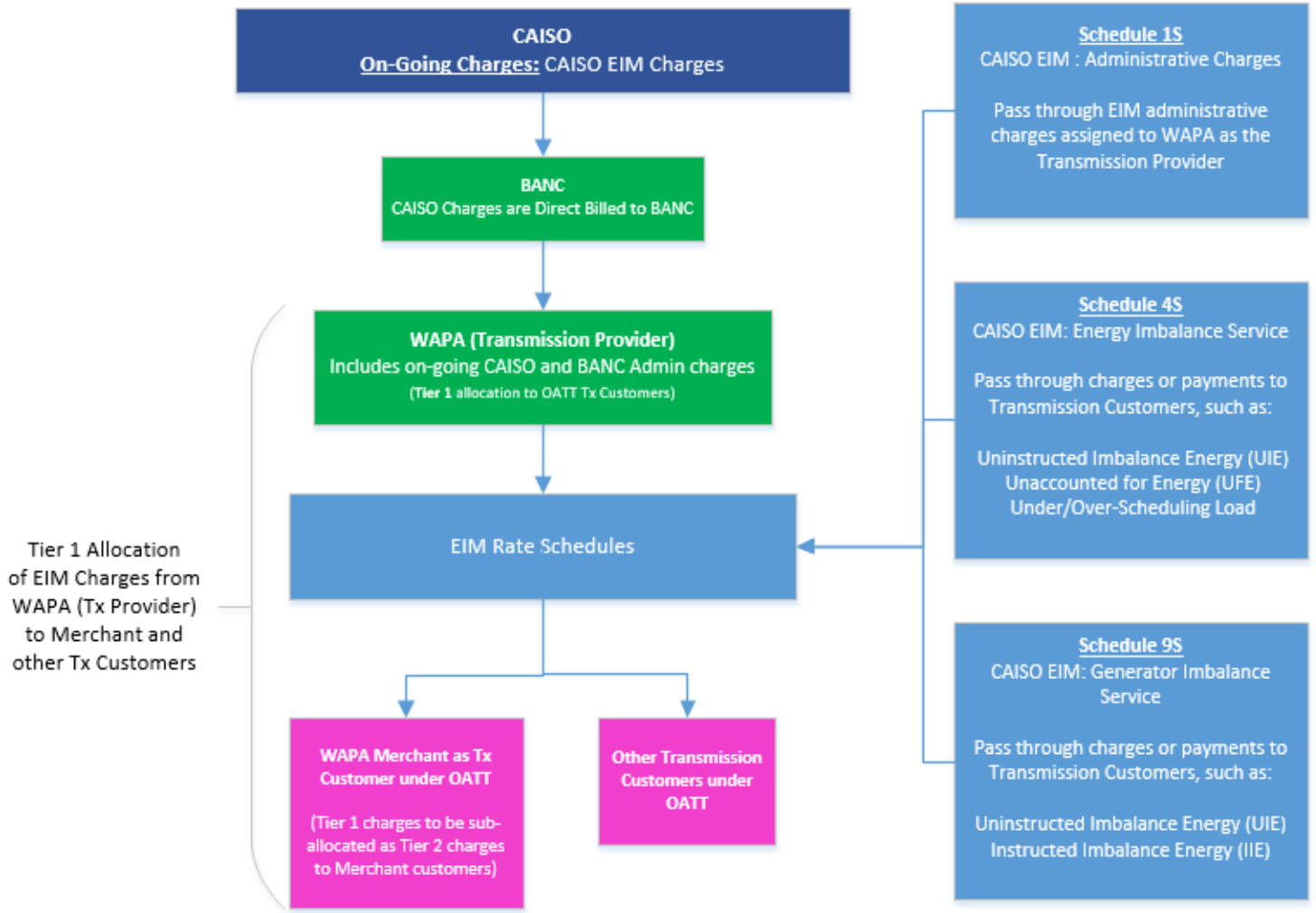
Tier 2 Cost Allocation

- Is the sub-allocation of CAISO and BANC charges from WAPA Merchant to CVP customers
- Discussed at the May 11th Informal Customer Meeting

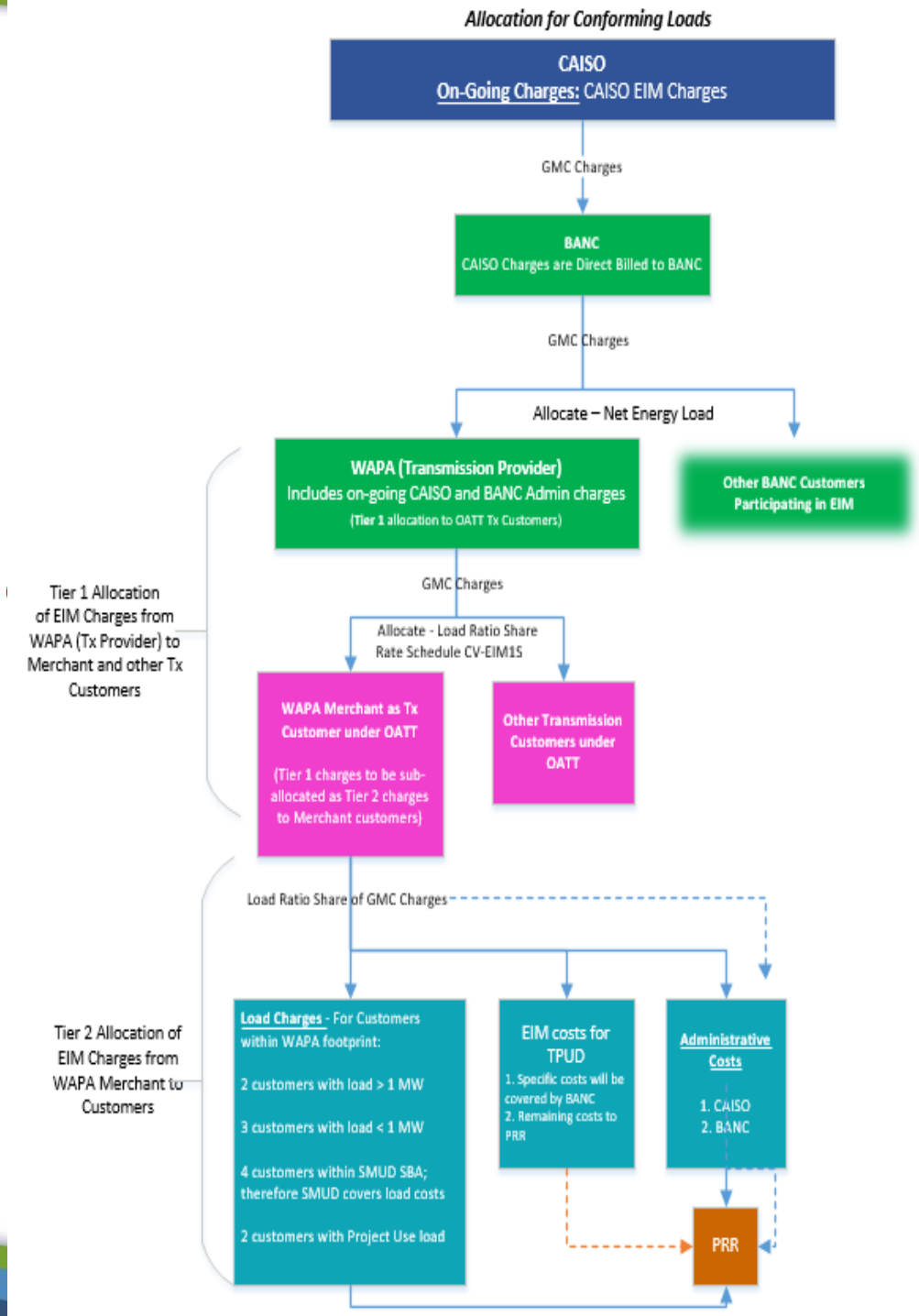
Allocation of EIM Charges and Benefits



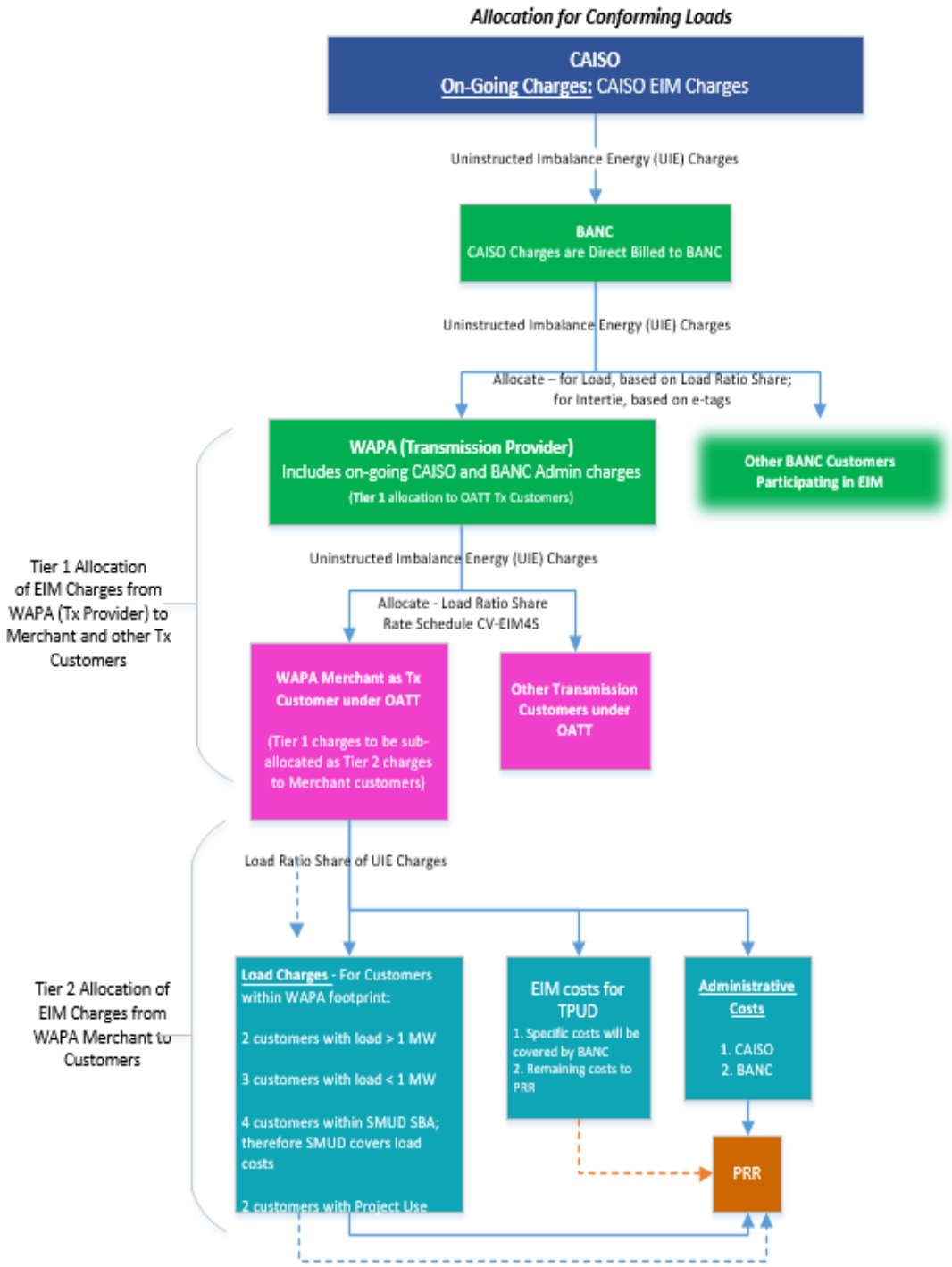
Tier 1 Allocation of EIM Charges and Benefits



Example Allocation of EIM Admin Charges



Example Allocation of Energy Imbalance Charges



Western Area Power Administration

Overview of Proposed EIM Rate Schedules

Autumn Wolfe
SN Rates Manager

EIM Proposed Rate Schedules

- Proposed New Rate Schedules
  - EIM Administrative Charges (CV-EIM1S)
  - EIM Energy Imbalance Service (CV-EIM4S)
  - EIM Generator Imbalance Service (CV-EIM9S)

Structure of Proposed Formula Rate

- Component 1 - Formula Rate or Penalty
- Component 2 - Regulatory charges or credit passed through to relevant customer when possible or through Component 1
- Component 3 - Balance Authority charges or credits passed through to relevant customer when possible or through Component 1

Administrative Charges Proposed Rate Schedule CV-EIM1S

- Component 1

  The formula rate for EIM Administrative Service Charges shall be sub-allocated to WAPA's Transmission Customers based on load ratio share for the time period in which WAPA incurs EIM administrative costs.

Energy Imbalance Service Proposed Rate Schedule CV-EIM4S

- Component 1

  The formula rate for EI service is the deviation of the Transmission Customer's metered load compared to the load component of the Base Schedule settled as Uninstructed Imbalance Energy (UIE) for the period of the deviation at the applicable Load Aggregation Point (LAP) price where the load is located.

  Unless such charges are allocated to the Transmission Customer directly by the EIM Entity, a Transmission Customer shall be responsible for any pass-through charges/credits associated with applicable EI Service charges allocated to WAPA, as Transmission Provider, for its participation in the EIM, in accordance with this rate schedule. WAPA will sub-allocate load charges based on a Transmission Customer's load ratio share.

Generator Imbalance Service Proposed Rate Schedule CV-EIM9S

- Component 1

  Unless such charges are allocated to the Transmission Customer directly by the EIM Entity, a Transmission Customer shall be responsible for any pass-through charges/credits associated with applicable GI Service charges allocated to WAPA, as Transmission Provider, for its participation in EIM, in accordance with this rate schedule. Such charges may include those due to operational adjustments of any affected Interchange. WAPA will direct assign charges or sub-allocate charges based on the Transmission Customer's load ratio share.

EIM – All Proposed Rate Schedules

- Component 2

  Any charges or credits associated with the creation, termination, or modification to any tariff, contract, or rate schedule accepted or approved by the Federal Energy Regulatory Commission (FERC) or other regulatory bodies will be passed on to each relevant customer. The FERC's or other regulatory bodies' accepted or approved charges or credits apply to the service to which this rate methodology applies. When possible, WAPA-SN will pass through directly to the relevant customer FERC's or other regulatory bodies' accepted or approved charges or credits in the same manner WAPA-SN is charged or credited. If FERC's or other regulatory bodies' accepted or approved charges or credits cannot be passed through directly to the relevant customer in the same manner WAPA-SN is charged or credited, the charges or credits will be passed through using Component 1 of the formula rate.

EIM – All Proposed Rate Schedules

- Component 3

  Any charges or credits from the Host Balancing Authority (HBA) applied to WAPA-SN for providing this service will be passed through directly to the relevant customer in the same manner WAPA-SN is charged or credited to the extent possible. If the HBA's costs or credits cannot be passed through to the relevant customer in the same manner WAPA-SN is charged or credited, the charges or credits will be passed through using Component 1 of the formula rate.

No Incremental Transmission Charge for EIM

Unless subsequently imposed by the Market Operator (MO) as part of the MO Tariff and promulgated by WAPA through rate proceedings, there shall be no incremental transmission charge assessed for transmission use related to the EIM. Transmission Customers must have transmission service rights, as set forth in Attachment S.

Overview of Revisions to Existing Rate Schedules

Autumn Wolfe
SN Rates Manager

Revisions to Existing Rate Schedules

- Proposed Revised Rate Schedules
  - Energy Imbalance Service (CV-EID5)
    - Supersedes CV-EID4
  - Generator Imbalance Service (CV-GID2)
    - Supersedes CV-GID1
- Both revised rate schedules include changes to Component 1
- Rate schedules will be extended thru December 31, 2024

Energy Imbalance Service Proposed Rate Schedule CV-EID5

Current Component 1

EI service is applied to deviations as follows: (1) for deviations within the bandwidth, there will be no financial settlement, unless otherwise dictated by contract or policy; rather, EI will be tracked and settled with energy…

Proposed Component 1

EI service is applied to deviations as follows **unless otherwise dictated by contract or policy**: (1) deviations within the bandwidth **will be tracked and settled financially, at the greater of the California Independent System Operator market price, or WAPA-SN's actual cost**...

Generator Imbalance Service Proposed Rate Schedule CV-GID2

Current Component 1

GI is applied to deviations as follows: (1) for deviations within the bandwidth, there will be no financial settlement, unless otherwise dictated by contract or policy; rather, GI will be tracked and settled with energy…

Proposed Component 1

GI is applied to deviations as follows **unless otherwise dictated by contract or policy**: (1) deviations within the bandwidth **will be tracked and settled financially at the greater of the California Independent System Operator market price or WAPA-SN's actual cost**…

Proposed Trinity Public Utility District EIM Settlement

Tong Wu

SN Settlements Manager

BANC EIM Entity Settlement for Trinity Public Utilities District (TPUD) – Charge Allocation

- Since TPUD is a First Preference Customer, WAPA will be responsible for real-time deviation charge codes

- BANC will be responsible for all other charge codes allocated to TPUD based on metered load

BANC EIM Entity Settlement for TPUD – Proposed Process

1. BANC will perform daily calculation of TPUD allocations on each BANC Charge assessed to WAPA.
   a. Calculate WAPA portion and assign to WAPA.
   b. Calculate TPUD portion and assign to BANC.
2. Monthly invoice WAPA for WAPA's portion of the charges.
3. Monthly invoice BANC for TPUD's portion of the charges.
4. BANC will track TPUD's portion of the charges.

Follow-Up Items

Autumn Wolfe

SN Rates Manager

Follow Up Items

- Reduction to BANC Implementation Costs
  - Phase 1 Reimbursement, decrease from $461,070 to $297,507
- Additional information on Net Energy Load (NEL) percentages used for the allocation of BANC costs
- Direct Connect vs Non-Direct Connect customers
- Questions and responses from customer meetings will be posted to our website at: https://www.wapa.gov/regions/SN/rates/Pages/Rate-Case-2021-WAPA-194.aspx
  - Some of the more frequently asked questions will be shared at future informal customer meetings

BANC EIM Implementation Costs

Category	*Original* Total Cost Estimate *	*Revised* Total Cost Estimate *	2019 Actual	2020 Estimate	2021 Estimate
Phase II Decision & Gap Analysis	**$60,000**	**$51,059**	**$51,059**	**$0**	**$0**
Phase II Implementation Costs	**$1,308,750**	**$1,003,936**	**$100,726**	**$703,645**	**$199,565**
SMUD Support	$81,950	$97,297	$15,049	$61,686	$20,562
Settlements Support	$0	$87,970	$0	$58,646	$29,324
Software Upgrades	$357,600	$399,320	$0	$321,840	$77,480
Utilicast Project Oversight	$750,000	$298,659	$63,625	$183,099	$51,935
CAISO Fees	$59,600	$61,090	$10,430	$40,230	$10,430
Legal Support (BBSW)	$59,600	$59,600	$11,622	$38,144	$9,834
Contingency	**$0**	**$50,197**	**$0**	**$39,064**	**$11,133**
Security and Collateral	**$163,500**	**$81,750**	**$0**	**$0**	**$81,750**
Phase 1 Reimbursement	**$446,900**	**$297,507**	**$297,507**	**$0.00**	**N/A**
Total Estimate	**$1,979,150**	**$1,484,449**	**$449,292**	**$742,709**	**$292,448**

* Total cost estimate is spread over 3 years.

BANC Load Ratio Share Percentage

- Net Energy for Load (NEL) is based on load ratio share and used for BANC EIM Phase II cost allocation. As part of the BANC EIM evaluation, a decision was made to use 2017 NEL for BANC members and WAPA.

- Under Phase I, only SMUD joined EIM and paid for all costs of joining EIM. If City of Redding, Roseville Electric Utility, Modesto Irrigation District and WAPA had joined EIM during Phase I, WAPA's share of implementation cost would have been 10.9%.

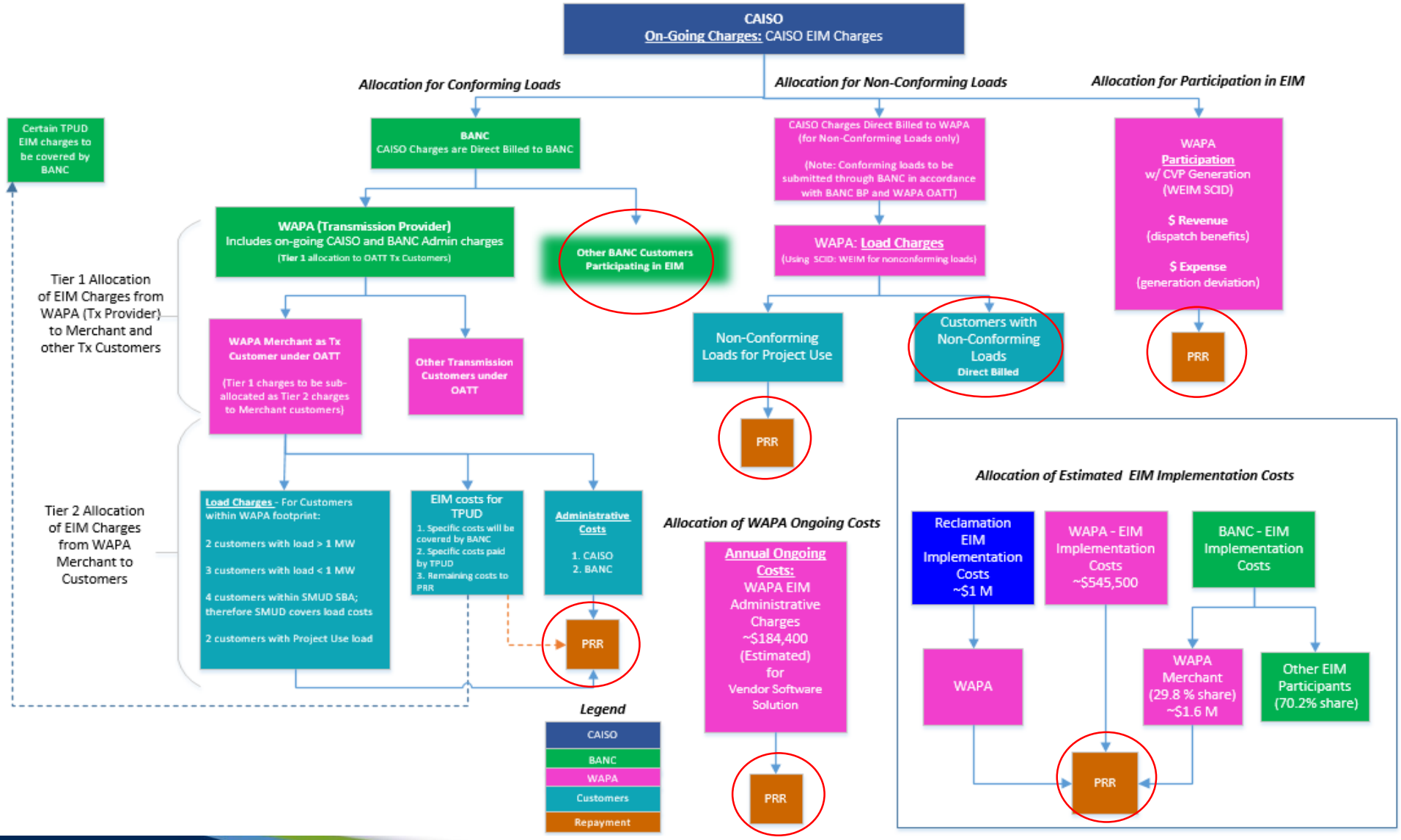
BANC Load Ratio Share Percentage

- Under Phase II, City of Redding, Roseville Electric Utility, Modesto Irrigation District and WAPA are joining EIM and are responsible for Phase II implementation costs. Based on 2017 NEL, WAPA's share of Phase II implementation costs is 29.8%.

- Since SMUD paid EIM costs under Phase I and the Phase II EIM participants will be using some of those systems, WAPA is responsible for its load ratio share of Phase I implementation costs. WAPA's share of Phase I implementation costs is 10.9%.

- Updated NEL percentages may be used in future allocations.

Direct Connect vs Non-Direct Connect Customers



Customer Comments and Questions

Additional information can be found on WAPA's Website:

WAPA Rate Case:
https://www.wapa.gov/regions/SN/rates/Pages/Rate-Case-2021-WAPA-194.aspx

SNR EIM Information:
https://www.wapa.gov/regions/SN/PowerMarketing/Pages/western-eim.aspx

Contact Information
Email: SNR-RateCase@wapa.gov

Closing Remarks

Autumn Wolfe

SN Rates Manager

Thank you!